

March 6, 2015

Project C150132.00

Mr. Michael A. Glagola
Dominion Resources Services, Inc.
5000 Dominion Boulevard
Glen Allen, Virginia 23060

**Virginia Solid Waste Management Regulations; Closure Design Criteria
Possum Point Power Station
ABCDE Ash Ponds Closure Project
Prince William County, Virginia**

Dear Mr. Glagola:

GAI Consultants, Inc. (GAI) has prepared this letter for Dominion Resources Services, Inc. (Dominion) to assist in the development of the design criteria for the Possum Point Power Station (Station) ABCDE Coal Combustion By-product (CCB) Ash Ponds Closure Project (Project), located in Prince William County, Virginia (VA). In our meeting with Dominion on February 12, 2015, Dominion indicated that the CCB ponds at the Station should be closed in accordance with the VA Solid Waste Management Regulations (VSWMR, 9VAC 20-81 *et seq.*). This letter provides a summary of VSWMR closure criteria and pending Environmental Protection Agency (EPA) Coal Combustion Residual (CCR) regulations provided in the prepublication copy of 40 Code of Federal Regulations (CFR), Part 257, Subpart D, dated December 19, 2014.

The ponds are currently regulated by the Virginia Department of Conservation and Recreation (DCR) Dam Safety Program and under Virginia Pollution Discharge Elimination System (VPDES) Permit No. VA0002071. The ponds do not have a solid waste permit. At this time, GAI requests that Dominion provide further guidance regarding the VSWMR design and permitting requirements for this Project.

Virginia Regulations

Applicability of VSWMR

The VA Department of Environmental Quality (VDEQ) regulates the disposal of CCBs as an industrial waste in accordance with 9VAC-20-81. GAI understands the CCB ponds at the Station are not subject to 9VAC-20-81, as described in 9VAC20-81-310.F:

9VAC20-81-310.F – Applicability, Surface Impoundments and Lagoons.

- 1. Lagoons and surface impoundments are regulated under State Water Control Law. During the operating life of these facilities, this chapter does not apply. If the operator intends to close such a facility by burial of sludges and residue in place, this chapter shall not apply where the regulating agency establishes the closure requirements in accordance with water pollution control regulations. The standards in this section shall apply to owners and operators of lagoons and surface impoundments only if new wastes, not contained in the lagoon or impoundment, are proposed to be disposed with the residue. In those cases, the operation and closure of the facility constitutes construction and operation of a landfill and must be accomplished as specified in Part III (9VAC20-81-100 et seq.) of this chapter.*

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2. *Leachate lagoons are regulated under Part III (9VAC20-81-100 et seq.) of this chapter and are subject to the requirements for liners in 9VAC20-81-210 C.*

Dominion anticipates that VA will adopt the pending EPA CCR regulations and all surface impoundments containing CCBs will soon be regulated under 9VAC-20-81. The intent of this letter is to help identify which part of 9VAC-20-81 should be used for the design criteria for the Project.

Once appropriate VSWMR criteria are identified by Dominion, GAI will prepare a scope of work to complete the additional design and permitting work associated with these criteria (e.g., closure/post-closure plans, groundwater monitoring, etc.), if required.

VSWMR Closure Requirements for Surface Impoundments

Section 9VAC20-81-370 of the VSWMR specifies closure requirements for surface impoundments that are subject to the VSWMR. If Dominion decides to close the Station's CCB ponds, according to the VSWMR, this section should be considered as cited below:

9VAC20-81-370 Closure Requirements for Surface Impoundments and Lagoons.

1. *Closure. At closure, the owner or operator shall:*
 - a. *Remove all waste residue, contaminated containment system components (liners, etc.), contaminated subsoils, and decontaminate structures and equipment contaminated with waste, and manage them as solid waste (or hazardous waste, if applicable) unless exempt under Part III (9VAC20-81-100 et seq.) of this chapter; or*
 - b. *Close the impoundment and provide post-closure care for a landfill under Part III (9VAC20-81-100 et seq.) of this chapter, including the following:*
 - i. *Eliminate free liquids by removing liquid waste and waste residue;*
 - ii. *Install a groundwater monitoring system and initiate groundwater monitoring in accordance with the requirements of 9VAC20-81-250;*
 - iii. *Stabilize remaining waste residues to a bearing capacity necessary to support the final cover; and*
 - iiii. *Cover the surface impoundment with a final cover designed and constructed in accordance with the requirements of 9VAC20-81-160 D 2.*
2. *Inspection. The department shall inspect all solid waste management facilities at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory and shall require any necessary construction or such other steps as may be necessary to bring unsatisfactory sites into compliance with this chapter.*

Potential Solid Waste Permit Requirements

In a meeting between GAI and Dominion on February 12, 2105, Dominion indicated that the Possum Point CCB Ash Ponds ABCD would be closed in accordance with the VSWMR and a solid waste permit may be required for the closure of the ponds. It was also stated that CCB Ash Pond E would be clean closed in accordance with the EPA CCR Regulations. GAI understands that Dominion is reviewing the requirements to close the ponds in accordance with the requirements for solid waste industrial landfills in addition to Surface Impoundment Closure Requirements cited above. Based on our review of the VSWMRs, GAI understands these additional requirements may include the requirements for preparing a written closure plan per 9VAC20-81-160, written post closure care plan per 9VAC20-81-170, written leachate management plan per 9VAC20-81-210, and written groundwater monitoring plan per 9VAC20-81-250. GAI recommends that Dominion have a pre-application meeting with the VDEQ to identify permitting, design, and inspection requirements for closing the CCB ponds in accordance with VDEQ requirements that may take effect in the future.

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If a solid waste permit is required from VDEQ, GAI anticipates a Part B Permit Application would be submitted to VDEQ. GAI has assumed a Part A Application would not be required because the ponds are existing facilities. The specific documents required for a Solid Waste Permit Application would be discussed with VDEQ in a pre-application meeting and would be described in a Notice of Intent (NOI) to be submitted to the VDEQ after the pre-application meeting. The VDEQ will provide a response to the NOI outlining the requirements to obtain a permit or proceed with the Project. It should be noted that 9VAC20-81-160 indicates that solid waste landfills should provide VDEQ a notice of intent to close at least 180 days before the date closure begins. In addition, Major Part B Permit modifications/applications issued by the VDEQ require public notification and comment. GAI anticipates that a Part B Permit Application would include the following:

- Solid Waste Disposal Facility Part B Permit Application Cover Sheet – VDEQ Form SW PTB
- Attachment I: Copy of NOI with Area Map and Site Map
- Attachment IV: Closure Plan
- Attachment V: Post Closure Plan
- Attachment VII: Construction Quality Assurance (CQA) Plan and Technical Specifications
- Attachment VIII: Leachate Management Plan
- Attachment X: Groundwater Monitoring Plan
- Attachment XII: Financial Assurance Documentation

EPA Regulations

The EPA CCR regulations for the disposal of CCRs from electric utilities are provided in the prepublication copy of 40 CFR Part 257, Subpart D – Standards for the Disposal of CCRs in Landfills and Surface Impoundments, dated December 19, 2014.

Applicability of EPA CCR Regulation

The applicable part of the pending CCR regulations for the proposed Project is provided under Closure and Post-Closure Care, section 257.100–Inactive CCR Surface Impoundments. The basis for the subject project is that the ponds at the Station will no longer receive CCR after 180 days from the publication of the CCR Rule in the federal register, and will therefore be considered Inactive CCR Surface Impoundments. In addition, the closure requirements stated in Section 257.100 of the Rule will be completed within 36 months of the Rule's publication date in the federal register.

EPA Rule Closure Requirements

The applicable closure requirements include closure of the proposed ponds by leaving CCR in place and closure through removal of CCR. GAI understands the closure of Pond E is currently planned to be closed by the removal of CCR. According to the Rule, CCR removal and decontamination of the CCR surface impoundment is complete when all CCR in the inactive CCR surface impoundment is removed. The closure of Ponds A,B,C, and D will be accomplished by capping CCR in place. In general, the closure/cap system must include:

- Initial dewatering of the ponds to remove free liquids.
- Initial stabilization of the waste to support final cover system.
- Installation of a final cover system that accommodates settling and subsidence of the waste, prevents erosion, and provides a permeability less than 1×10^{-5} cm/sec or the permeability of the natural subsoils present, whichever is less. GAI has assumed a geomembrane will be used to meet the permeability requirements.
- Grades to minimize infiltration of liquid into the waste and prevent the ponding of water on the cap.

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- Measures to provide for major slope stability.
- Measures to minimize need for future maintenance of the CCR Unit.

EPA Rule Reporting/Permitting Requirements

The CCR Rule does not require a permit to close the facilities. The Rule does require the following recordkeeping activities and certifications from a qualified Professional Engineer (PE). The recordkeeping requirements include some notifications/postings to the State Director and a publicly accessible internet site. The recordkeeping activities and certifications required include:

1. Owner's notification of the intent to close the surface impoundment. The notification shall include a schedule, description of the proposed closure method, and PE certification that the schedule is feasible and the closure design meets the requirements of the Rule. The Owner's notification shall be issued no later than eight months after the publication date of the proposed CCR rule (257.100.c.1).
2. The Owner shall provide annual progress reports providing information on the status of the closure Projects (257.100.c.2).
3. Owner's notification of the completion of closure activities shall be submitted within 60 days of completing the closure. The notification must include written certification from a PE that the closure was completed in accordance with the requirements of the rule (257.100.c.3).

Summary

This letter describes some of the major differences between closure criteria for inactive surface impoundments in the pending EPA CCR Rule and the closure criteria for surface impoundments and industrial landfills in the VSWMRs. The most significant differences include the requirement for a closure plan, post-closure care plan, groundwater monitoring, and the permit application process. A summary is provided as Table 1.

The design and closure of the Station's ponds must meet the requirements of the pending EPA CCR Rule. Our current scope of work does not include design and permitting for a VA Solid Waste Permit. GAI is prepared to provide VSWMR design and permitting services upon request from Dominion. GAI is requesting that Dominion provide guidance on design and permitting requirements related to the VSWMR. GAI recommends that Dominion meet with the VDEQ to discuss future state regulations that may take effect during the closure of the Station's ponds. Should you have any questions regarding this letter, please contact me at 724-387-2170, extension 2707.

Sincerely,

GAI Consultants, Inc.



John R. Klamut, P.E.
Engineering Manager



Donald J. Spaeder, P.E.
Assistant Vice President

JRK:DJS/taj

Attachment: Table 1 - Comparison of EPA CCR Rule and VSWMR for Possum Point Pond Closure Project

Table 1
COMPARISON OF EPA CCR RULE AND VSWMR FOR POSSUM POINT POND CLOSURE PROJECT

	EPA CCR Rule 40 CFR Part 257, Subpart D		VSWMR 9 VAC Chapter 81		
	Inactive Surface Impoundment	Regulation Section	Industrial Landfill	Sanitary Landfill	Regulation Section
Notice of Intent	Required within eight months of rule publication date	257.100.c.1	At least 180 days prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the department and the solid waste planning unit of the intent to close.		9VAC-20-81-160.B.5
Closure Plan	No plan required, but must provide written certification from a PE that the closure design meets the requirements and is technically feasible within the timeframe required by the rule.	257.100.b.4 and 257.100.b.6	Required, the plan must be submitted to the VDEQ and include: a schedule for closure, estimate of waste disposed onsite over active life of landfill, description of final cover system, description of stormwater management design and maintenance controls, closure cost estimate for purpose of financial assurance.		9VAC-20-81-160.B.1
Clean Closure Requirements	Remove and decontaminate all areas affected by releases from the CCR surface impoundment. CCR removal and decontamination of the CCR surface impoundment are complete when all CCR in the inactive CCR surface impoundment is removed, including the bottom liner of the CCR unit.	257.100.b.5	For Surface Impoundments: Remove all waste residue, contaminated containment system components (liners, etc.), contaminated subsoils, and decontaminate structures and equipment contaminated with waste, and manage them as solid waste (or hazardous waste, if applicable) unless exempt under Part III (9VAC-20-81-100 et seq.).		9VAC-20-81-370.A.1
Cap System Requirements	Installation of a final cover system that accommodates settling and subsidence of the waste, prevents erosion, and provides a permeability less than 1x10 ⁻⁵ cm/sec or the permeability of the natural subsoils present, whichever is less. GAI has assumed a geomembrane will be used to meet the permeability requirements.	257.100.b.3	Maximum Slope is 3:1, Minimum Slope is two percent Cap Alternative Allowed by Rule: 1. A barrier layer consisting of a geosynthetic clay liner <i>or a</i> geosynthetic membrane having a minimum thickness of 40 mils; 2. A protective cover layer consisting of a minimum of 18 inches of soil; and 3. Six-inch vegetative support layer capable of sustaining native plant growth.	Maximum Slope is 3:1, Minimum Slope is two percent Cap Alternative Allowed by Rule: 1. An 18-inch soil infiltration layer with a hydraulic conductivity no greater than 1x10 ⁻⁵ cm/sec or a geosynthetic clay liner installed over the intermediate cover; 2. A barrier layer consisting of a geosynthetic membrane having a minimum thickness of 40-mils; 3. A protective cover layer consisting of a minimum of 18 inches of soil; and 4. Six-inch vegetative support layer capable of sustaining native plant growth.	9VAC-20-81-160.D
Agency Inspections	Not Required	NA	VDEQ will inspect at completion of closure. In addition, VDEQ has a policy to complete inspections during closure construction to facilitate closure certification report review.		9VAC-20-81-160.D.6
Certification Report and Closure Notifications	Owner's notification of the completion of closure activities shall be submitted within 60 days of completing the closure. The notification must include written certification from a PE that the closure was completed in accordance with the requirements of the rule.	257.100.c.3	1) Submit a Certification Report signed by a PE verifying that closure has been completed in accordance with the closure plan requirements and CQA/QC requirements. 2) Post sign on property, submit plat to local agency, and record landfill closure on property deed.		9VAC-20-81-160.D
Construction Quality Assurance Program	Not specifically required but PE certification that the closure was completed in accordance with the rule is required.	257.100.c.3	A CQA program should be implemented by a CQA officer who is a PE. The program must include a written CQA plan that must be submitted to the VDEQ.		9VAC-20-81-130.Q
Post-Closure Care Plan	Not Required	NA	Required, the plan must be submitted to the VDEQ and include: Description of maintenance activities, owner contact information, and a description of the planned uses during the post-closure care period.		9VAC-20-81-170.A
Post-Closure Care Period	Not Applicable	NA	Minimum of 10 years for CDD and industrial landfill facilities.	a. Minimum of 10 years for sanitary landfill facilities that ceased to accept wastes before October 9, 1993. b. Minimum of 30 years for sanitary landfill facilities that received wastes on or after October 9, 1993.	9VAC-20-81-170.B
Post-Closure Care Termination	Not Applicable	NA	Required, After post-closure care period owner must submit request to VDEQ to discontinue post-closure care and include PE certification assessing and evaluating the landfill's potential for increased risk to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.		9VAC-20-81-170.C

Table 1 (Continued)

Leachate Management Plan	Not Required	NA	During post-closure care, owner must maintain and operate a leachate collection system, as applicable, in accordance with the requirements in 9VAC-20-81-210. The director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment. A Leachate Management Plan may be required to demonstrate compliance with 9VAC-20-81-210.	9VAC-20-81-170.A 9VAC-20-81-210
Groundwater Monitoring Plan	Not Required	NA	For Industrial Landfills, groundwater monitoring is required for new and existing facilities until end of post-closure care period (at a minimum): a. Create Groundwater Monitoring Plan; b. Install Background and Downgradient Wells (additional wells may be required at the Possum Point Power Station) c. Establish Background within 360 days of well installation; d. Conduct Semi-Annual First Determination Groundwater Monitoring; and e. Enter into Phase II monitoring and remedial action, if required.	9VAC-20-81-250
Permit Application Process	Not Applicable	NA	Submit Notice of Intent per 9VAC-20-81-450.B For Part B Permit Applications: 1. The Part B application shall be reviewed for administrative completeness before technical evaluation is initiated. The applicant shall be advised in writing within 30 days whether the application is complete or what additional documentation is required. 2. The administratively complete application will be coordinated with other state agencies according to the nature of the facility. The comments received shall be considered in the permit review by the department. The application will be evaluated for technical adequacy and regulatory compliance. In the course of this evaluation, the department may require the applicant to provide additional information. At the end of the evaluation, the department will notify the applicant that the application is technically adequate and in regulatory compliance, or that the department intends to deny the application.	9VAC-20-81-450
Public Notice	See Internet Notifications	257.107	Public Notice for the Permit Issuance is generally as follows: 1. If the application is found to be technically adequate and in full compliance with this chapter, a draft permit shall be developed by the department. 2. Copies of the draft permit will be available for viewing at the applicant's place of business or at the regional office of the department, or both, upon request. A notice announcing the beginning of the public comment period and the availability of the draft permit shall be made in a newspaper with general circulation in the area of the facility. A copy of the notice of availability will be provided to the chief administrative officer of all cities and counties that are contiguous to the host community. 3. If the application is for a new landfill or an increase in landfill capacity (includes expansion), then the department shall hold a public hearing. 4. The notice shall notify the public of the 30-day public comment period and include the opportunity to request a public hearing. The department shall hold a public hearing on the draft permit whenever the department finds, on the basis of requests, that: a) There is a significant public interest in the issuance, denial, modification, or revocation of the permit in question; b) There are substantial, disputed issues relevant to the issuance, denial, modification, or revocation of the permit in question; and c) The action requested is not, on its face, inconsistent with, or in violation of, these regulations, the Waste Management Act (§ 10.1-1400 et seq. of the Code of Virginia), or federal law or regulations. 5. The department also may hold a public hearing when it is believed that such a hearing might clarify one or more issues involved in a permit decision. 6. If a public hearing is to be held, the department shall convene it 30 days or more after the notice is published in the local newspaper. The public hearing shall be conducted within the local government jurisdiction of the facility. A comment period shall extend for a 15-day period after the conclusion of the public hearing. 7. A decision to permit, to deny a permit, or to modify the draft permit shall be rendered by the director within 90 days of the close of the hearing comment period.	9VAC-20-81-450.E
Financial Assurance	Not Required	NA	9VAC-20-70 specifies the requirements for financial assurance and allowable financial assurance mechanisms. Solid waste management facilities shall provide financial assurance in accordance with 9VAC-20-70.	9VAC-20-81-90.C